DOCUMENT RESUME

ED 074 465 24 CS 000 431

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TITLE An Experiment in Teaching Reading to Bidialectal Kindergarten Children. Research and Development Memorandum No. 102.
INSTITUTION Stanford Univ., Calif. Stanford Center for Research and Development in Teaching.
SPONS AGENCY National Inst. of Education (DHEW), Washington, D.C. Task Force on Lab. and Center Transition.
REPORT NO SU-RD-M-102
PUB DATE Feb 73
NOTE 33p.

EDRS PRICE MF-$0.65 HC-$3.29
DESCRIPTORS *Kindergarten Children; *Negro Dialects; Negro Youth; Nonstandard Dialects; Phonics; Reading; *Reading Instruction; *Reading Research; *Reading Skills; Standard Spoken Usage; Word Recognition

ABSTRACT

Four different treatments were used over a period of five months in this experiment concerning the teaching of reading skills to 35 black kindergarten children. The treatments were: (1) spelling patterns/phonic approach using black standard English, (2) a sight approach using black standard English, (3) a sight approach utilizing black nonstandard English during the first two months of instruction, and (4) a spelling patterns/pnonic approach utilizing black nonstandard English during the first two months of instruction. The children's proficiency in both standard and nonstandard English was assessed on sentence repetition tests, and an attempt was made to measure their attitude toward black nonstandard speech on a matched guise preference test involving simple like/dislike reactions to 2 guises of 4 different speakers. The main results of the experiments were that the spelling patterns approaches proved superior to the sight approaches in 2 of the criterion measures: the Gates-MacGinitie vocabulary test and experimenter's test that was based specifically on materials covering only the sight approach. No interaction effects between the treatments and either preference for or knowledge of black nonstandard English were detected. (Author/WR)

STANFORD CENTER
FOR RESEARCH AND DEVELOPMENT
IN TEACHING

Research and Development Memorandum No. 102

AN EXPERIMENT IN TEACHING READING TO BIDIALECTAL KINDERGARTEN CHILDREN

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Stanford, California

February 1973

Published by the Stanford Center for Research and Development in Teaching, supported in part as a research and development center by funds from the National Institute of Education, U. S. Department of Health, Education, and Welfare. The opinions expressed in this publication do not necessarily reflect the position, policy, or endorsement of the National Institute of Education. (Contract No. OEC-6-10-078, to be renegotiated as NIE Contract No. NE-C-00-3-0063.)

Introductory Statement

The Center's mission is to improve teaching in American schools. Too many teachers still employ a didactic style aimed at filling passive students with facts. The teacher's environment often prevents him from changing his style, and may indeed drive him out of the profession. And the children of the poor typically suffer from the worst teaching.

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Component A of Program 3, through which this experiment was conducted, is particularly concerned with problems of bilingual and bidialectal education.

Acknowledgments

The authors wish to express their gratitude to all those whose help and cooperation made this experiment possible. Directly involved in the experimental study were Ms. Juanita Brockman Croft of Nairobi College, who joined one of the experimenters (Dwight Brown) in teaching the experimental classes; Ms. Faye Knox, who recorded the Black English repetition test and helped administer criterion tests; Mr. James Robinson, who administered the Black English repetition test; Ms. Alice McNair, who did the art work for the comprehension tests; and Jeanie Hoover (age 8) and Destiny Knox (age 10), who illustrated the lessons. The lessons themselves were made up by Ms. Hoover.

Particular thanks are due to the administrators and teachers of the Ravenswood City School District, whose cooperation was essential: Mr. Warren Hayman, Acting Superintendent of the District, Mr. William Rybinski, Principal of Brentwood School, Mr. Willie Richardson, Principal of Belle-Haven School, Ms. Fleta Bixby and Ms. Ruth Jackson of Belle-Haven School, and Ms. Evelyn Dansby and Ms. Vera Boyson of Brentwood School.

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Abstract

Four different treatments were used over a period of 5 months in this experiment concerning the teaching of reading skills to 35 Black kindergarten children. The treatments were (a) spelling patterns/phonic approach utilizing Black standard English, (b) a sight approach utilizing Black standard English, (c) a sight approach utilizing Black nonstandard English during the first two months of instruction, and (d) a spelling patterns/phonic approach utilizing Black nonstandard English during the first two months of instruction. The children's proficiency in both standard and nonstandard English was assessed on sentence repetition tests at the outset of the experiment, and an attempt was made to measure their attitude toward Black nonstandard speech on a matched guise preference test involving simple like/dislike reactions to 2 guises of 4 different speakers.

The criterion tests used to measure the effect of the treatments were the Gates-MacGinitie Reading Test (Vocabulary Comprehension; Primary A, Form 2), the Durkin Primer word test (Word Attack and Sentence Comprehension), and 3 short comprehension tests prepared by the experimenters. The main results of the experiments were that the spelling patterns approaches proved superior to the sight approaches in 2 of the criterion measures: the Gates-MacGinitie vocabulary test and the experimenter's test that was based specifically on materials covering only the sight approach. No interaction effects between the treatments and either preference for or knowledge of Black nonstandard English were detected.

AN EXPERIMENT IN TEACHING READING TO BIDIALECTAL KINDERGARTEN CHILDREN

Mary Rhodes Hoover, Robert L. Politzer, and Dwight Brown

In this experiment 35 Black kindergarten children (18 males, and 17 females) were given systematic reading instruction during the second half of the school year (January through May), 1971-72. One of the goals of the experiment was to determine the long-range effects of reading instruction at the kindergarten level. For this purpose the reading achievement of the group of children who received reading instruction in kindergarten will be compared to that of a matched control group in 1972-74 when both groups are in first and second grades. This memorandum, however, covers only short-term effects of the methodological variables introduced in the experiment.

The methodological variables used were (a) the teaching approach taken--namely a spelling patterns/phonic approach vs. a sight approach and (b) the handling of initial instruction--Black nonstandard English, with a switch to Black standard English after two months, vs. Black standard English throughout.

Both of these variables are subject to considerable debate. In a spelling patterns/phonic approach, phoneme-grapheme relationships and spelling patterns are taught in a carefully chosen sequence. Words with high sound-symbol regularity are taught first. In the sight approach, words are typically selected on the basis of frequency of use. Various clues (picture, context) are used as aids in word recognition, and phonic analysis is introduced only on an incidental basis. Although there is some evidence that a spelling patterns/phonic approach may have

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This paper was presented by Mary Hoover at the Conference on Cognitive and Language Development of the Black Child, St. Louis, January 14-16, 1973.

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certain advantages, specifically in initial instruction (e.g., Bond & Dykstra, 1968), its superiority over a sight approach in general and in particular for Black bidialectal children is open to question. Johnson (1971), for example, doubts the efficiency of a phonic approach in teaching Black children to read, primarily because he feels that teachers would try to force the phoneme-grapheme correspondences of standard English as spoken by most non-Blacks on speakers of Black nonstandard English. On the other hand, Chall (1967) has postulated that children from low-income groups achieve better with an approach emphasizing sound-symbol correspondences.

That Black children should be taught to read in Black nonstandard English has been advocated by several linguists, especially Stewart (1969) and Baratz (1969). These scholars base their arguments primarily on the considerable evidence (e.g., Osterberg, 1961; Modiano, 1968) showing that children achieve better in reading if initial instruction is conducted in their native language or dialect. There is no experimental evidence, however, showing that Black children achieve better in programs where reading is learned in Black nonstandard English.

An additional question investigated in this experiment was whether or not the approach involving initial instruction in Black nonstandard English would favor pupils who were either more proficient in or held more favorable attitudes toward Black nonstandard English. The latter possibility had been suggested by the results of a previous study (Politzer & Hoover, 1972) showing that overt contrasting of Black standard and nonstandard English in oral language instruction favored children with positive attitudes toward Black nonstandard English.

With regard to all the short-run effects investigated in the experiment, it needs to be pointed out that the investigation was undertaken primarily in the hope of getting interesting clues with respect to the effects of the methodological variables involved and not with any expectation of settling the underlying issues.

Design

Subjects

The experiment was conducted in a school district in the San Fra cisco Bay area whose population is predominantly Black (85%). Only Black children took part in the experiment. There was considerable va ation in their speech patterns, as indicated by their performance in a repetition type speech test in Black standard and nonstandard English (see Control Variables below). Two kindergarten classes were chosen fc the experiment.

Independent Variables

Treatments. Each of the two classes taking part in the experiment was randomly divided into four treatment groups. For each class the four treatments were administered by the same teacher. One of the teachers was a coauthor of this report, Dwight Brown. The other teacher was Juanita Brockman Croft of Nairobi College. Both teachers were fa- miliar with techniques used in reading instruction and both are Black. Total treatment time involved a maximum of 1430 minutes (because of absenteeism, most children did not receive a full 1430 minutes of in- struction). Treatments took place from January through May in sessions which, because of problems involved in scheduling, lasted from 15 to 30 minutes (with no fewer than two sessions occurring during any one week).

The four treatments involved were the following: Treatment 1, A spelling patterns/phonic approach utilizing Black standard English as the medium of instruction; Treatment 2, A sight approach utilizing Black standard English; Treatment 3, A sight approach utilizing Black nonstan- dard English for the first two months; Treatment 4, A spelling patterns/ phonic approach utilizing Black nonstandard English for the first two months.

The standard English used in the treatments was Black standard English as defined by Taylor (1970). In other words, the teacher did not attempt to enforce non-Black phonology, and accepted as standard

such pronunciations as /me/ (for man), /den/ (for then), /bu/ (for book), /to/ (for told), and /bes/ (for best).

The initial lessons in Black nonstandard English in Treatments 3 and 4 included nonstandard syntactical patterns, as for instance, Billy he big, Look at Billy hat, and Me and my brother we be working hard. The children were told they were being taught to read in "play ground" talk. After the initial 10 lessons all reading materials for all four treatments were presented in standard English only, because the criterion tests for the experiment were in standard English.

The distinction between the sight and the spelling patterns/phonic approaches was based on the following: Treatments 2 and 3 (sight approaches) included 82 words based on vocabulary found in two typical sight approach texts, Harper and Row's Preprimer I (O'Donnell, 1966) and the Bank Street Primers I and II (Bank Street College of Education, 1965). The children were taught the alphabet and the initial consonant sounds. The main teaching approach was the memorization of "sight vocabulary" (i.e., the use of the complete printed word as a stimulus for its production). However, additional supplementary techniques were also used, including initial consonant substitution (e.g., compare book with look), configuration clues (e.g., look at the two "eyes" in look), and context and picture clues.

Treatments 1 and 4 (spelling patterns approaches) included words based on vocabulary similar to that used in Lippincott's Basic Reading, Book A (McCracken & Walcutt, 1970). The number of words used in the experiment (229) was also comparable to the number of words used in Lippincott's Book A.

Sight approaches stress repetition of a few words chosen on the basis of frequency. Much time is spent on picture clues and context clues to enhance comprehension. Spelling patterns approaches, however, expose children to more words, which are attacked through phonic analysis and chosen on the basis of sound-symbol regularity.

Treatments 1 and 4 (spelling patterns approaches) included only a few words (the articles the and a, and the pronouns I and you) taught as sight vocabulary. The children were taught the alphabet and initial

consonant sounds in conjunction with short (simple) vowels. The general sequence of presentation chosen for the spelling patterns approach was the following:

Short vowels and single consonants: Nat, fat, is, got, red
Long vowels: go, he
Consonant blends and digraphs: catch, Fred, black, proud, milk
Vowel digraphs: teacher, book
Silent e: take, note
R's: church, first

Techniques such as using flashcards, writing words on the board, and singing some of the reading selections were used in all of the treatments. (For sample lessons, see Appendix C.)

Control Variables

The following variables were measured as control variables for the purpose of possible covariance analysis.

Age. The age of pupils was measured in months. The range of pupils taking part in the experiment was from 61 to 81 months, with the mode and average age being 67 months.

Attendance. Attendance was measured in number of units of 18-minute duration (18 minutes being the length of the average class session). The range of attendance was from 46 to 79 units, with both the mode and average being at 70 units.

Stanford Achievement Test. All pupils taking part in the experiment had received the Stanford Achievement Test (kindergarten level) in the fall of 1971. Their scores on this test and on the subsection dealing with letters and sounds were made available by the school district.

For the purpose of investigating the possible interaction of treatments with proficiency in or attitude toward Black nonstandard English, the pupils were given the following tests.

Black Standard English Repetition Test. This test (described in detail in Politzer & Hoover, 1973) consists of repetition of 15 Black standard English sentences embedded in a short story presented on tape.

Black Nonstandard English Repetition Test. This test (see Politzer & Hoover, 1973) consists of repetitions of 15 nonstandard Black English sentences embedded in a short Black folktale presented on tape.

Matched Guise Nonstandard Black English Preference Test. This test, a version of a test used in a previous experiment (Politzer & Hoover, 1972), is based on the matched guise technique developed by Lambert and some of his associates (Lambert, Frankel, & Tucker, 1966). The children were simply asked to react in terms of "like" or "dislike" to the standard and nonstandard Black English guises of four different speakers. The possible range of scores was thus from -4 (dislike all nonstandard guises, like all standard guises) to +4 (like all nonstandard guises, dislike all standard guises). The test was then scaled on a range from 1 to 9 (with 5 representing the neutral or zero score). The average score on the test turned out to be 4.7, with a range from 2 to 6.

Dependent Variables

Gates-MacGinitie Reading Test (Vocabulary Comprehension) (Primary A, Form 2). This test includes, as do all of the primary reading tests, vocabulary lists of high-frequency words. The words were not selected on the basis of phoneme-grapheme correspondence regularity, but on the basis of their frequency of use in speaking and writing. The highest possible score on the test is 48. Each test item consists of matching 1 of 4 words against a picture.

Durkin Primer Word Attack. This test was used by Dolores Durkin (1966) in identifying early readers in kindergarten. Like the Gates-MacGinitie test it is based on high-frequency words. The test consists of 37 words which are to be read out loud by the pupil; the words are not accompanied by pictures.

Durkin Primer Sentence Comprehension. This test consists of six short sentences containing 27 words. It is scored on the basis of words read correctly. It is not accompanied by pictures.

Comprehension Tests A, B, and C. These tests were constructed by the experimenter. Each items in these tests consists of a short sentence

(e.g., This is a bus) to be matched with one of three pictures. Comprehension Test A (six items) was based entirely on words utilized in Treatments 1 and 4 (spelling pattern approaches). Comprehension Test B (six items) was based entirely on words used in Treatments 2 and 3 (sight approaches). Comprehension Test C (four items) was "neutral" in the sense that it contained only words utilized in none of the four treatments. All of the words could be decoded by the use of initial consonant substitution, a skill taught to all four groups. (E.g., the word Roy was on this test. No group was given the word Roy during the experiment; both groups, however, had had the word toy).

Hypotheses

The first hypothesis was that the four treatments would have different outcomes as measured by the criterion tests described above.

It was also hypothesized that there would be an interrelation between treatments and preference for and/or proficiency in Black nonstandard English: the higher the proficiency in and/or preference for Black nonstandard English, the better would be the achievement in treatments making initial use of it. A corollary of this hypothesis is that the higher the proficiency in Black standard English and/or the lower the preference for Black nonstandard English, the higher would be the achievement in treatments utilizing only Black standard English.

Results

The criterion measures used in the experiment show expected intercorrelations (Table 1). The two sections (Word Attack and Sentence Comprehension) of the Durkin Primer word tests correlate very highly with each other (.91) and with the results of the Gates-MacGinitie Vocabulary Test (.60, .64). The significant correlations of Comprehension Tests A, B, and C with the Gates-MacGinitie tests (.42, .31, .40) give some assurance as to the concurrent validity of the tests constructed by the experimenters. Comprehension Tests A and C also correlate significantly with both of the Durkin Primer word tests.

TABLE 1

Intercorrelation of Criterion Measures

Test	1	2	3	4	5	6
1 Gates-MacGinitie Vocabulary	X					
2 Durkin Word Attack	.60**	X				
3 Durkin Comp	.64**	.91**	X			
4 Comp Test A	.42**	.43**	.39	X		
5 Comp Test B	.31*	.19	.20	.52**	X	
6 Comp Test C	.40*	.49**	.45**	.28	.35*	X

*p < .05

**p < .01

TABLE 2

Correlations of Criterion Measures with Control Variables

Control Variable	Gates-MacGinitie Vocabulary	Durkin Word Attack	Durkin Comp	Comp Test A	Comp Test B	Comp Test C
Age (Month)	.05	.13	.12	.25	-.09	.14
Attendance	.19	.01	.09	.14	.07	-.03
Stanford Achievement	.48**	.70**	.08**	.60**	.36*	.25
Stanford (Letters and Sounds)	.44**	.76**	.71**	.62**	.27	.27
Sentence Rep. SBE	-.01	.25	.26	.10	.22	.15
Sentence Rep. NSBE	-.09	.11	.06	.11	.16	-.03
Matched Guise NSBE	.04	.03	.03	.38*	-.35*	-.10

*p < .05

**p < .01

Of the variables used as control measures, only the Stanford Achievement Test and its subsection Letters and Sounds show a consistent significant correlation with criterion measures (Table 2). For this reason the main hypothesis was investigated by using a computer program that produced both an analysis of variance as well as an analysis of covariance in which the Stanford Achievement Test was used as covariant.

Table 3 shows the mean scores on criterion measures achieved under the four treatments. The only significant differences due to treatment appear in the Gates-MacGinitie vocabulary test and in Comprehension Test B (see Analysis of Variance and Covariance of Criterion Measures, Appendix A). In both cases the significant difference is clearly due to better achievement under the spelling patterns approach (Treatments 1 and 4), with the Black standard English treatment (1) having a slight but not significant edge over treatment 4, including Black nonstandard English.

TABLE 3

Mean Scores on Criterion Measures

	Treatment 1 (N = 10)		Treatment 2 (N = 10)		Treatment 3 (N = 7)		Treatment 4 (N = 8)	
Test	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Gates-MacGinitie* Vocabulary	15.40	5.70	11.40	4.01	11.14	3.93	13.00	4.67
Durkin Word Attack	4.90	9.13	3.40	3.47	1.14	1.68	1.25	1.91
Durkin Comp	3.90	8.03	1.90	4.20	0.51	0.97	0.38	0.74
Comp Test A	3.50	1.51	2.56	1.51	2.17	1.17	3.71	2.22
Comp Test B*	3.60	1.27	2.44	1.01	1.50	1.05	3.14	1.57
Comp Test C	1.70	1.25	1.07	0.87	1.83	0.98	2.14	1.07

*Differences between means for Treatments 1 and 4 significant at the .05 level.

The superiority of Treatments 1 and 4 on Comprehension Test B is particularly surprising, since Comprehension Test B was constructed of words utilized in Treatments 2 and 3 and was thus supposed to favor the sight approach.

The scores on the Durkin Primer word tests are quite low. These low scores are most likely due to the fact that the pupils taking part in the experiment were not used to the task required by both of the Durkin tests: attack on words not accompanied by any pictorial clues. All the lessons used in the four treatments had made use of pictorial aids and the testing situation evidently should not have abandoned procedures to which the pupils had become accustomed.

In Appendix A it will be noted that analysis of covariance using the Stanford Achievement Test as a covariant did not produce significant treatment effects not shown by the analysis of variance. Sex was not included in the analysis of variance in order to avoid extremely small cells. A separate analysis of difference in achievement by male and female subjects, however, shows that none of these differences are significant (Appendix B).

TABLE 4

Correlation of Criterion Measures with Matched Guise NSBE Preference Test, by Treatment

Test	Treatments 1, 2	Treatments 3, 4
Gates-MacGinitie Vocabulary	.01	.07
Durkin Word Attack	.05	.04
Durkin Comp	.06	-.09
Comp Test A	.21	.53
Comp Test B	-.43	-.40
Comp Test C	.26	-.44

Tables 4, 5, and 6 show the correlations of the criterion measures under Treatments 1 and 2 and Treatments 3 and 4 with attitude toward Black nonstandard English (Matched Guise test) (Table 4), the Black standard English Repetition Test (Table 5), and the Black nonstandard English Repetition Test (Table 6). None of the correlations in any of the three tables reached the .05 significance level. No consistent pattern of differences in correlation under Treatments 1 and 2 on the one hand and Treatments 3 and 4 on the other, emerges in any of the three tables. There is no evidence for any of the interactions assumed by our second hypothesis.

TABLE 5

Correlation of Criterion Measures with
SBE Repetition Test by Treatment

Test	Treatments 1, 2	Treatments 3, 4
Gates-MacGinitie Vocabulary	-.03	.01
Durkin Word Attack	.28	-.07
Durkin Comp	.28	.07
Comp Test A	.16	.00
Comp Test B	.23	.20
Comp Test C	.08	.39

TABLE 6

Correlation of Criterion Measures with
NSBE Repetition Test by Treatment

Test	Treatments 1, 2	Treatments 3, 4
Gates-MacGinitie Vocabulary	-.23	.07
Durkin Word Attack	-.02	.07
Durkin Comp	-.09	.17
Comp Test A	.18	.05
Comp Test B	.25	-.08
Comp Test C	-.04	.13

Discussion

The results of the experiment give some indication that a systematic phonic approach may be superior to a sight approach, at least for the purpose of developing initial reading skills. The fact that the children receiving Treatments 1 and 4 did better than those receiving Treatments 2 and 3 on the test favoring the latter two treatments is particularly noteworthy. Unfortunately the experiment did not furnish any other results concerning the effects of the other variables that were introduced. The long-range effects of introducing reading in kindergarten remain to be investigated, just as the effects of initial instruction in Black nonstandard English need to be assessed by a larger, longitudinal experiment.

As far as the hypothesized attitude/treatment interactions are concerned, there may be at least two reasons why they were not shown in this experiment. (a) The ability to differentiate between types of speech and to hold differentiated attitudes toward types of speech may simply not be sufficiently developed at the kindergarten level. (For the entire problem

of development of attitudes toward social-language varieties, see Lambert & Klineberg, 1967, and Masangkay et al., 1969.) (b) The rather simple instrument used to determine attitudes may not have been capable of really measuring any existing attitudinal variables.

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APPENDIX A: ANALYSIS OF VARIANCE AND COVARIANCE OF CRITERION MEASURES

Table A-1

Gates-MacGinitie Vocabulary Test (Primary A, Form 2)

Analysis of Variance

Source	Sum of squares	D.F.	Mean square	F
Mean	4607.67481	1	4607.67188	261.37793
Treatment	181.53644	3	60.51213	3.43265*
Teacher	0.22443	1	0.22443	0.01273
Tr[a] x Te[b]	202.34939	3	67.44978	3.82620
Error	475.96667	27	17.62839	

Analysis of Covariance

Source	Sum of squares	D.F.	Mean square	F
Mean	3106.70627	1	3106.70605	205.05298
Treatment	159.64520	3	53.21506	3.51237*
Teacher	0.91907	1	0.91907	0.06066
Tr x Te	204.29611	3	68.09869	4.49474
Covs	82.04720	1	82.04718	5.41539
Cov. 1	82.04718	1	82.04718	5.41539
Error	393.91947	26	15.15075	

[a] Tr = Treatment

[b] Te = Teacher

* $p < .05$

Table A-2

Durkin Primer Word Attack

Analysis of Variance

Source	Sum of squares	D.F.	Mean square	F
Mean	226.40662	1	226.40660	8.43830
Treatment	120.53473	3	40.17824	1.49746
Teacher	19.75013	1	19.75012	0.73610
Tr x Te	137.59167	3	45.86388	1.70937
Error	724.43333	27	26.83084	

Analysis of Covariance

Source	Sum of squares	D.F.	Mean square	F
Mean	185.00374	1	185.00374	6.77712
Treatment	111.62561	3	37.20853	1.36304
Teacher	24.92016	1	24.92015	0.91288
Tr x Te	139.84505	3	46.61501	1.70762
Covs	14.67780	1	14.67780	0.53768
Cov. 1	14.67780	1	14.67780	0.53768
Error	709.75553	26	27.29828	

Table A-3

Durkin Primer Sentence Comprehension

Analysis of Variance

Source	Sum of squares	D.F.	Mean square	F
Mean	105.58791	1	105.58791	5.07529
Treatment	95.45838	3	31.81946	1.52946
Teacher	10.18944	1	10.18944	0.48978
Tr x Te	172.19634	3	57.39877	2.75898
Error	561.71667	27	20.80431	

Analysis of Covariance

Source	Sum of squares	D.F.	Mean square	F
Mean	121.68101	1	121.68100	5.91306
Treatment	84.83938	3	28.27979	1.37425
Teacher	15.72682	1	15.72682	0.76424
Tr x Te	186.79615	3	62.26538	3.02577**
Covs	26.67932	1	26.67932	1.29648
Cov. 1	26.67932	1	26.67932	1.29648
Error	535.03734	26	20.57834	

**$p < .01$

Table A-4

Comprehension Test A

Analysis of Variance

Source	Sum of squares	D.F.	Mean square	F
Mean	196.50612	1	196.50612	109.46571
Treatment	7.49568	3	2.49856	1.39185
Teacher	0.24106	1	0.24106	0.13429
Tr x Te	31.89595	3	10.63198	5.92265**
Error	43.08333	24	1.79514	

Analysis of Covariance

Source	Sum of squares	D.F.	Mean square	F
Mean	120.64654	1	120.64653	64.50597
Treatment	7.53612	3	2.51204	1.34311
Teacher	0.24566	1	0.24566	0.13135
Tr x Te	31.95251	3	10.65083	5.69467**
Covs	0.06607	1	0.06607	0.03533
Cov. 1	0.06607	1	0.06607	0.03533
Error	43.01726	23	1.87032	

**p < .01

Table A-5

Comprehension Test B

Analysis of Variance

Source	Sum of squares	D.F.	Mean square	F
Mean	155.12540	1	155.12540	99.85724
Treatment	16.93356	3	5.64452	3.63348*
Teacher	0.53504	1	0.53504	0.34442
Tr x Te	5.56118	3	1.85373	1.19328
Error	37.28333	24	1.55347	

Analysis of Covariance

Source	Sum of squares	D.F.	Mean square	F
Mean	106.73557	1	106.73557	66.75829
Treatment	17.18622	3	5.72873	3.58307*
Teacher	0.51575	1	0.51575	0.32258
Tr x Te	5.83258	3	1.94419	1.21600
Covs	0.51008	1	0.51008	0.31903
Cov. 1	0.51008	1	0.51008	0.31903
Error	36.77325	23	1.59884	

*$p < .05$

Table A-6

Comprehension Test C

Analysis of Variance

Source	Sum of squares	D.F.	Mean square	F
Mean	75.81938	1	75.81937	65.49484
Treatment	1.53351	3	0.51117	0.44156
Teacher	0.37359	1	0.37359	0.32272
Tr x Te	2.31378	3	0.77126	0.66623
Error	27.78333	24	1.15764	

Analysis of Covariance

Source	Sum of squares	D.F.	Mean square	F
Mean	49.69842	1	49.69841	41.21016
Treatment	1.57628	3	0.52543	0.43569
Teacher	0.37832	1	0.37832	0.31370
Tr x Te	2.35195	3	0.78398	0.65008
Covs	0.04589	1	0.04589	0.03806
Cov. 1	0.04589	1	0.04589	0.03806
Error	27.73744	23	1.20597	

APPENDIX B

Male/Female Difference on Criterion Measures

Test	Male (N = 18)		Female (N = 17)		F ratio
	Mean	S.D.	Mean	S.D.	
Gates-MacGinitie Vocabulary	12.61	4.10	13.12	5.59	0.09
Durkin Word Attack	2.33	2.81	3.47	7.26	0.38
Durkin Comp	1.06	3.06	2.71	6.32	0.97
Comp Test A	3.06	1.71	3.00	1.70	0.01
Comp Test B	2.77	1.48	2.80	1.37	0.01
Comp Test C	1.83	1.02	1.80	1.08	0.01

APPENDIX C: SAMPLE LESSONS

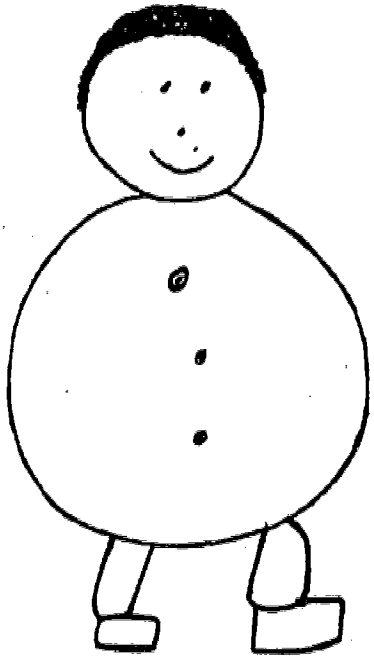
The following lessons are typical samples of the reading program used in the experiment. In the initial 10 lessons, Treatments 1, 2, 3, and 4 are differentiated. Lesson 1 appears, therefore, in 4 formats. Treatments 1 and 4 are based on the phonics approach. The children were first taught the pronunciation of the individual vowel sounds represented by the letters a and i. Then they practiced the letters in the context of the words I, fat, Nat, etc. In Treatments 2 and 3, based on the sight approach, the children were simply taught to associate words with configurations of letters. In Treatments 1 and 2, standard English sentence structure was used. The basic sentences for Treatments 3 and 4 represent Black non-standard patterns: Billy he big (use of both noun and pronoun subject, be deletion) and I is fat (use of is as first person verb).

In lesson 11, Treatments 1 and 4 on the one hand and 2 and 3 on the other have been collapsed and only standard English patterns are used. Treatments 2 and 3 introduce brother, sister, little as sight vocabulary. Treatments 1 and 4 give additional practice in short vowels (am, man, sack, bring, bills, trips) and on the "silent e" effect on i (driver, live, like) and o (note) and a (take). The digraphs ey, ai (grey, mail) are introduced.

Lesson 1 (Treatment 1)

a t m n f

am fat Nat I



Nat

I am Nat.

I am fat.

Lesson 1 (Treatment 2)

Billy big

Billy

Look at Billy.

Billy is big.

Lesson 1 (Treatment 3)

Billy big

Billy

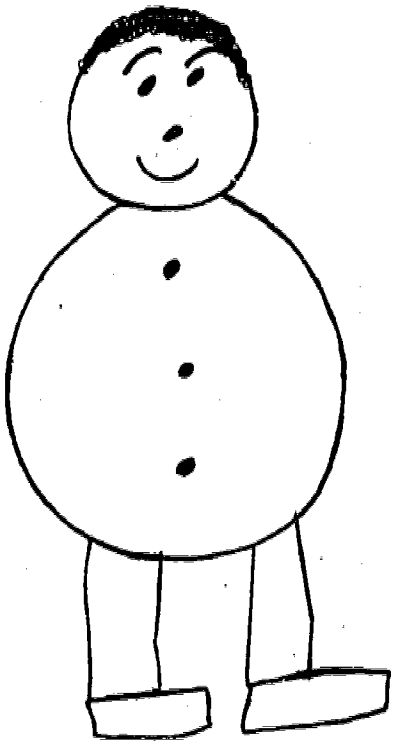
Look at Billy.

Billy he big.

Lesson 1 (Treatment 4)

a i t n s f

is fat Nat I



Nat

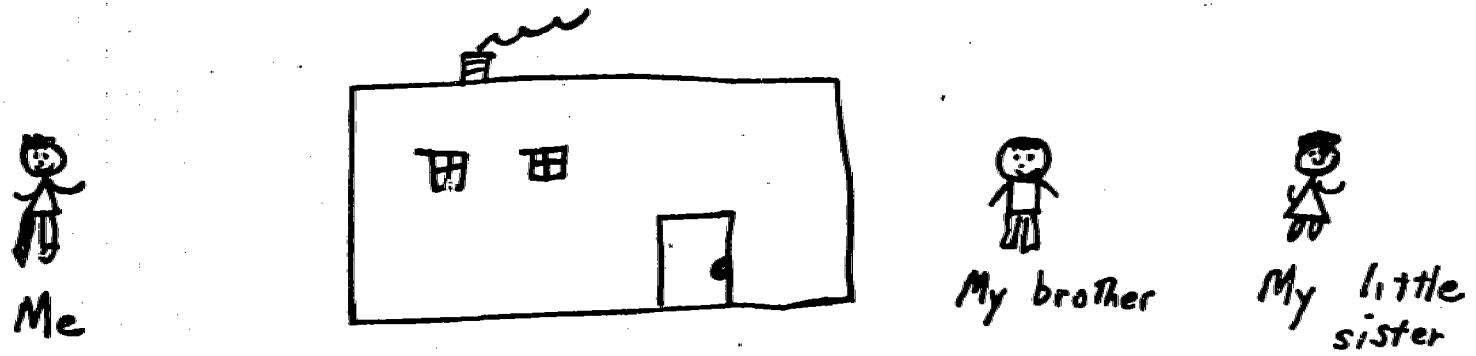
I is Nat.

I is fat.


I am the bus driver.
I like to drive.
I like to take trips.
Greyhound Bus Lines
Grey-hound Bus Lines


I am the mailman.
I bring the mail.
I have letters, notes and bills in my sack.
Mail
U.S. Mail

Lesson 11 (Treatments 2 and 3)



I live in my house.
My brother lives in my house.
My little sister lives in my house.